

CLAIMS

We claim:

1. A semiconductor package comprising:  
a semiconductor chip;  
a package body formed of a hardened encapsulant material;  
metal leads, wherein each lead is electrically connected to the chip; and  
a flat plate fully encapsulated within said package body, wherein the chip is mounted on the plate and an encapsulated first portion of each of the leads overhangs a periphery of the plate.
2. The package of claim 1, wherein the plate is comprised of copper and has a CuO or Cu<sub>2</sub>O film on all surfaces thereof.
3. The package of claim 1, wherein an electrically insulative, thermally conductive adhesive layer is attached between the first portion of the leads and the plate, and said layer is covered by said encapsulant material.
4. The package of claim 3, wherein said adhesive layer is a double-sided tape.
5. The package of claim 1, wherein the plate is metal, and further comprising a plurality of electrically isolated, encapsulated members;  
wherein each said member extends from an edge of the package body toward said plate and overhangs the periphery of the plate; and  
wherein said metal plate is a connection with each said member.
6. The package of claim 5, wherein each said member extends from a corner of said package body.
7. The package of claim 5, wherein the metal plate is connected to said members by an electrically insulative, thermally conductive adhesive layer.
8. The package of claim 5, wherein each said connection is between the respective member and a protrusion from a surface of the plate.

9. The package of claim 5, wherein the connection is a metal to metal connection between the plate and each said member.

5 10. The package of claim 1, wherein the plate is formed of metal, and the metal plate has a thickness that is at least two times a thickness of said leads.

11. The package of claim 1, wherein the encapsulant material is between said plate and the first portion of the leads.

10 12. A leadframe comprising:

a metal frame including a central region within the frame;

a plurality of metal leads extending from a first end integral with the frame to a second end adjacent to the central region; and

15 a flat plate supported in the central region, wherein a first portion of each said lead overhangs a peripheral edge of said plate.

13. The leadframe of claim 12, wherein the plate is comprised of copper and has a CuO or Cu<sub>2</sub>O film on all surfaces thereof.

20 14. The leadframe of claim 13, wherein an electrically insulative, thermally conductive adhesive layer is attached between the first portion of the leads and the plate.

15. The leadframe of claim 14, wherein said adhesive layer is a double-sided tape.

25 16. The leadframe of claim 12, further comprising a plurality of electrically isolated members extending from said frame adjacent to said leads;  
wherein each said member overhangs the periphery of the plate and is in a connection with said plate.

30 17. The leadframe of claim 16, wherein each said member extends from corner of said frame.

35 18. The leadframe of claim 16, wherein the metal plate is connected to said members by an electrically insulative, thermally conductive adhesive layer.

19. The leadframe of claim 16, wherein each connection is a metal to metal connection between the plate and the respective member.

5 20. The leadframe of claim 16, wherein the plate is formed of metal, and the metal plate has a thickness that is at least two times a thickness of said leads.

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